

**Genie III**

**CP / M**

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Genie III CP/M support manual

for version 2.2a

	Original System Lowe CPH 2.2 (DT SS)	(DT DS)
Backup:	2768: 128 Byte Record Capacity	5536
	346: Kilobyte Drive Capacity	692
	128: 32 Byte Directory Entries	128
	128: Checked Directory Entries	128
	256: Records / Extended	512
	16: Records / Block (2048 bytes)	32 (4096 Bytes)
	36: Sectors / Track	72
	3: Reserved Tracks	3

Double Sided System (DT DS)

Org Sys in A Double Dest in B

FORMAT <>

B

2

D

<>

<>

System <>

A

<>

B

<>

<>

PIP U B := \*.\* <>

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### Backing-up your diskettes.

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Before using your CP/M to run , write or save any programs it is nessecary to make a duplicate copy. NEVER use a master diskette for anything other than backing up , otherwise should anything happen to this diskette would mean that you would have to purchase another.

The normal way to make a backup from CP/M would be to first FORMAT a blank disketo a SYSGEN (system generation) and then use PIP to copy all the programs to your new diskette (using the format :- PIP B:=A:\*.\*) .

The other way is to use the program called BACKUP which is provided with your Genie III CP/M.

The BACKUP program will make a duplicate copy of a diskette. All formats of diskette are acceptable (40 or 80 track, single or double sided) but it is essential that the disk drives A: and B: are of the same type.

BACKUP will not copy between different formats.

To use the BACKUP program, type BACKUP followed by NEW LINE.

The program will ask you to insert the diskette that you want to backup into drive A: and press NEW LINE.

Then it will ask you to insert a blank diskette into drive B: and press and press NEW LINE.

The program then reads the CP/M format ( how many tracks/sides) and will format,copy and verify the new diskette.

NOTE Any existing data on the diskette in drive B: will be lost.

### COPY UTILITY

This program is provided so that the user can copy selected files from one disk to another.

The format of the copy program is:-

COPY Y:=Z:        where Y:= the destination disk drive name (drive to  
be copied to)        and Z: = the source disk drive name (drive to be  
copied from)

All the directory names will appear one at a time on the screen.

Pressing Y will copy the file displayed.

Pressing N will skip the file and display the next file.

Pressing B will move back to the previous file.

Pressing Q will quit and return to CP/M.

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### FORMAT Utility

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Before the Genie III can store information onto a diskette , the diskette MUST be FORMATTED with certain information that the computer can understand.

The Format utility puts this information onto a blank diskette.

To execute the program type FORMAT followed by NEW LINE.

The program will then ask you which drive to format,

Reply by pressing A,B,C,D or NEW LINE to return to CP/M.

If you answered with either A,B,C or D then it will ask you how many tracks to format.

Reply by pressing 1 or 2 for 40 or 80 tracks respectively.

It then asks if the drive is single or double sided,

Reply by pressing S or D.

Finally it asks you to press NEW LINE to format the diskette. Before pressing NEW LINE check that you have answered the questions correctly. If you see any mistakes then simply press any other key and it will restart the program.

\*\*\*\*\* NOTE \*\*\*\*\* make sure that your master diskette is write - protected and that you have not told the program to format it.

The program will then tell you the track that it is either formatting or verifying.

If all goes well it will display the message "FORMATING COMPLETE" and restart the program.

If any error messages appear then you can retry formatting it again, if this fails then use another new diskette.

Example Format for an 80 track single sided diskette in drive B:

Genie III Disk Format Utility. vers 1.1  
Copyright (c) 1982 Lowe Electronics.

Select Drive to Format ( A,B,C,D )  
or NEW LINE to return to CP/M. B

Number of Tracks ; 1 for 40 tracks  
2 for 80 tracks 2

S for single sided  
D for double sided S

Insert disk to be formatted in drive B:  
then press NEW LINE.

( or press any other key to restart )

Formatting track xx  
Verifying track xx  
Formatting complete

Select Drive to Format ( A,B,C,D )  
or NEW LINE to return to CP/M.

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### CLOCK Utility

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This program will tell you the time , day and date.  
To use simply type CLOCK followed by NEW LINE.

### TIME Utility

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This program allows you to set the time in the real time clock chip.  
To use simply type TIME HH:MMx followed by NEW LINE.

Where :-

HH = Hours. ( 1 to 12 )  
MM = Minutes.  
x = A for A.M. or P for P.M.

### DATE Utility

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This program allows you to set the date in the real time clock chip.  
To use simply type DATE x DD/MM/YY followed by NEW LINE.

Where :-

DD = Date.  
MM = Month.  
YY = Year.  
x = Day of the week  
0 representing Saturday through to 6 representing Friday.

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### 8 INCH DRIVE UTILITY -----

The 8 inch drive utility provided with your Genie III CP/M will allow you to use upto two 8 inch disk drives in conjunction with the 5 inch drives.

8 inch drives must be configured as drive numbers 3 or 4 and are then accessed as E: or F: respectively. 5 inch drives in positions 3 or 4 are accessed as C: or D:.

To use the program type in BIOS8 followed by NEW LINE.

### FASTEP Utility -----

This utility CAN ONLY BE USED if all your disk drives have a track to track access time of 6 milliseconds or less.

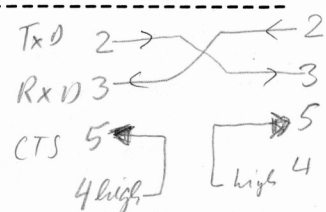
To use simply type FASTEP followed by NEW LINE. It will then ask you to press NEW LINE to set the fast step rates , pressing any other key will abort the program and return to CP/M.

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RS232C IMPLEMENTATION

The hardware configuration and pin connections are as follows:-

SIGNAL	PIN NUMBER	I/O	FUNCTION
PGND	1	GROUND	
TXD	2	OUTPUT	Transmit data.
RXD	3	INPUT	Receive data.
RTS	4	OUTPUT	Always high.
CTS	5	INPUT	High to transmit. ←
DSR	6	INPUT	Low to transmit (or open).
GND	7	GROUND	
CD	8	INPUT	Ignored.
DTR	20	OUTPUT	High when ready to receive.



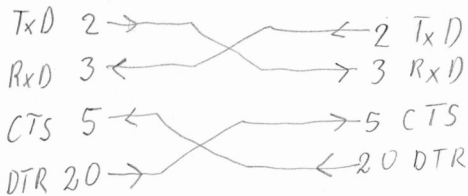
Communication via RS232C software in CP/M

Communication without any handshaking.

To ignore the handshake signals you should link pin 4 to pin 5 on the plug connecting to the Genie III.

Communication with two-way handshaking.

To connect the Genie III to a device with a similar RS232C specification for two-way transfer:-



pins 2 and 3 should be cross-connected  
pins 5 and 20 should be cross-connected  
pins 7 should be linked for ground.

RTS 4 always high  
4 RTS always high SET232 Utility

On powering up, the RS232C port is initialised to 9600 BAUD rate. The SET232 utility allows you to alter the port operating characteristics.

A series of questions are asked which are :-

- Number of data bits.
- Number of stop bits.
- If you want parity enabled.

and

Baud rate you want it to run at ( 50 to 38400).

Pressing NEW LINE to these questions will set the default values. After answering the questions pressing CTRL-C will return to CP/M or NEW LINE will restart the program.

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## CP/M Device Configuration

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CP/M allows the user to re-configure the input / output routines to be set to other devices.

E.G.

If you had a dumb terminal that you wanted to use with the Genie III at the other end of the office , you could set the I/O byte with STAT (see CP/M user manual) so that instead of reading and writing to the Genie III keyboard and screen , it would talk to your dumb terminal via the RS-232 port and treat the terminal as its own keyboard and screen. The command would be :-

STAT CON:=CRT:

Which would assign CON: ( Genie III keyboard and screen) to CRT: ( RS-232 input/output port).

There are four different devices supported by CP/M which are CON: , PUN: , RDR: and LST:. Each of these can be assigned to four types of devices.

The configuration of these devices in the Genie III are as follows :-

DEVICE	ASSIGNMENT		MEANING
CON: User console	(DEFAULT)	TTY:	Keyboard & Screen.
		CRT:	RS-232 Input / Output port.
		BAT:	Reader & Line printer. <i>Keyboard direct ?</i>
		UC1:	Keyboard & Screen
RDR: Reader	(DEFAULT)	TTY:	Keyboard.
		<del>RDR:</del> PTR:	RS-232 Input port.
		UR1:	Keyboard.
		UR2:	Keyboard.
PUN: Punch	(DEFAULT)	TTY:	Screen.
		<del>PUN:</del> PTP:	RS-232 Output port.
		UP1:	Screen.
		UP2:	Screen.
LST: List	(DEFAULT)	TTY:	Screen.
		CRT:	RS-232 Output port.
		LPT:	Line Printer.
		UL1:	Screen.

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## Special Key Assignment

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The following key assignments which apply to the Genie III keyboard are as follows :-

KEY	ACTION	ASCII CODE	CP/M EQUIVALENT KEY
Up Arrow	Escape key.	27 (1BH)	ESC ↑
Down Arrow	Line Feed.	10 (0AH)	CTRL-J
Back Arrow	Backspace.	8 (08H)	CTRL-H
Shift Back Arrow	Erase to beginning of Line.	24 (18H)	CTRL-X
Forward Arrow	Tab	9 (09H)	CTRL-I
Shift Forward Arrow	CTRL-L	12 (0BH)	CTRL-L
Break	Underline	95 (5FH)	-----
Shift Break	Rubout	127 (7FH)	RUB
Clear	Alpha Lock	-----	-----
Shift Clear	Clear Screen	-----	-----
F1 to F8	Function keys	128 (80H)	-----
		to 135 (87H)	-----
Shift F1 to F8	Function keys	136 (88H)	-----
		to 143 (8FH)	-----

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ED verlangt 0D 0A: für neue Zeile  
 F1 CTRL-D 80H  
 F2 " - A 81H  
 F3 " - B 82H  
 F4 CTRL-C 83H  
 F6 CTRL-E  
 F8 CTRL-G {Pips}

Shift F5 CTRL-L

Revers : <↑> <<shift> <R>>  
 Revers rücksetzen: <↑> <<shift> <S>>

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## Screen Control Codes

The following screen control codes are implemented in the Genie III CP/M.

In the following table ESC is the escape code, 27 (1BH).

ASCII CONTROL CODE	NAME	SCREEN RESPONSE
7 (07H)	BEL	Sounds keyboard buzzer. <i>CTRL G &lt;&gt;</i>
8 (08H)	BS	Bacspaces cursor & deletes character.
10 (0AH)	LF	Cursor moves down one line.
11 (0BH)	VT	Cursor moves up one line.
12 (0CH)	FF	Cursor moves forward one character.
13 (0DH)	CR	Cursor moves to begining of line.
24 (18H)	CAN	Erase to End Of LINE. <i>(00x18)</i>
25 (19H)	EM	Clear to end of frame.
26 (1AH)	SUB	Clear screen & Home cursor. <i>(1A)</i>
30 (1EH)	RS	Home cursor. <i>ad</i>
ESC C 67 (43H)	C	Returns cursor character in A register.
ESC D 68 (44H)	D	Deletes character at current cursor position & moves text back.
ESC I 73 (49H)	I	Inserts a space at current cursor position.
ESC R 82 (52H)	R	Turn on reverse characters.
ESC S 83 (53H)	S	Turn off reverse characters.
ESC = 61 (3DH)	=	Initiate Absolute Cursor Addressing.
ESC ? 63 (3FH)	?	Returns cursor position in DE register as column, row (offset by 32).

*ESC = 27 d = 1BH*

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\*\*\* NOTE \*\*\*

The absolute cursor addressing codes are used with two other position numbers, which can range from 32 (20H) to 111 (6FH) for column address and 32 (20H) to 55 (37H) for row address.

The remainder after subtracting 31 from these numbers ~~will~~ will give you the screen size which is 80 columns by 24 rows.

E.G.

To position the cursor at the top left of the screen you would send the following sequence of codes 27,61,32,32 (1BH,3DH,20H,20H).

*absol. Cursor links oben*

Reverse character mode is obtained by using the two escape codes in conjunction with each other, I.E.

After sending ESC R all the following text upto an ESC S would be printed in reverse screen characters.

*1                      80                      1                      24*  
Spalten: 32d    ---    111d                      Reihen 32    ---    55

*offset für beide    20 H*

